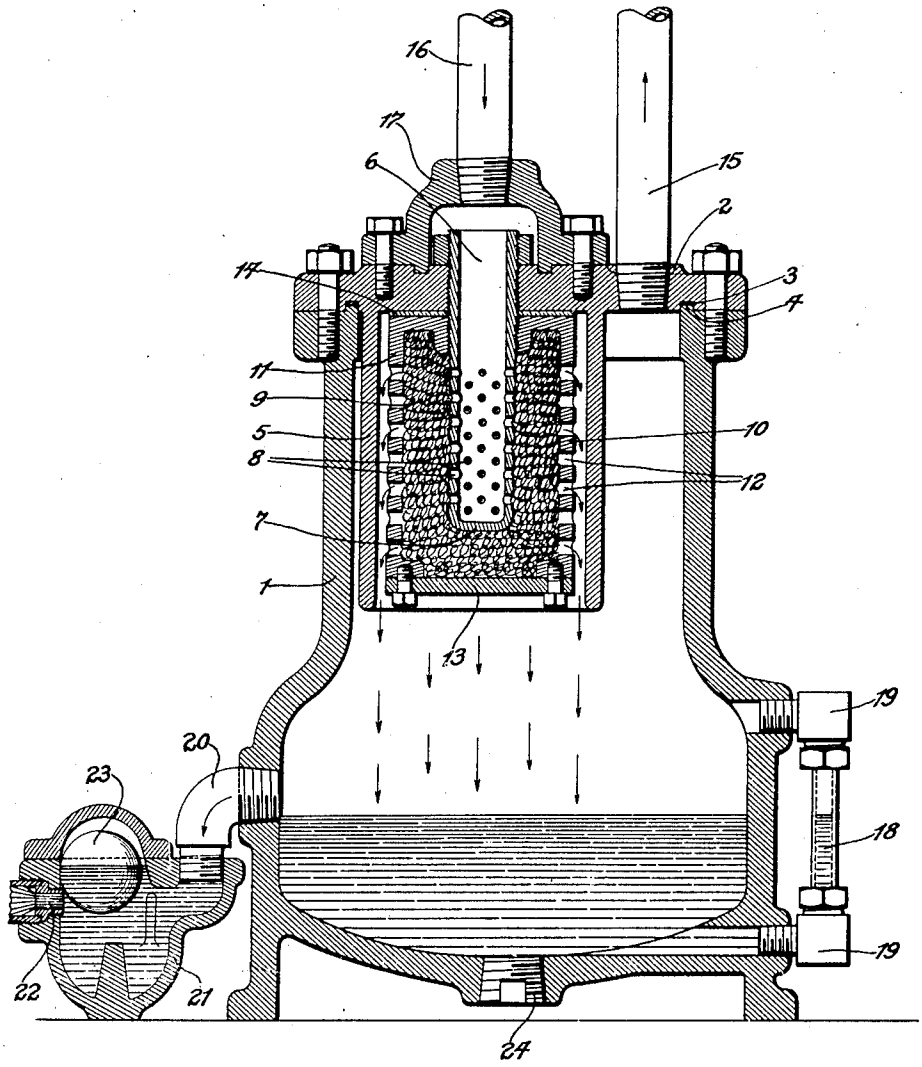
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E. WILSON

OIL SEPARATOR

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Inventor.
Edward Wilson,
by Pippey & Kingsland,
His Attorneys.

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UNITED STATES PATENT OFFICE.

EDWARD WILSON, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WILSON ENGINEERING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

OIL SEPARATOR.

Application filed July 2, 1921. Serial No. 482,067.

To all whom it may concern:

Be it known that I, EDWARD WILSON, a citizen of the United States, residing at St. Louis, Missouri, have invented a new and useful Oil Separator, of which the following is a specification.

This invention relates to oil separators.

An object of the invention is to provide an improved device or apparatus for separating oil from air or from compressed air or gases.

In the use of air compressors, it has been found that the air becomes impregnated or to a certain extent saturated with oil in vaporized or other form. The oil thus carried by or entrained with the air interferes with the proper use of the compressed air, and best results can be obtained only after the oil has been separated from the compressed air.

Another object of the invention is to provide an improved oil separator adapted and designed for use in association or connection with an air compressor for separating the oil from the air, leaving the air free from oil.

Other objects of the invention will appear from the following description, reference being made to the accompanying drawing, which is a vertical sectional view of my improved oil separator.

As shown the separator comprises a casing 1 the upper end of which is open, and a removable cover or closure plate 2 rigidly clamped on and closing the open end of the casing. The closure plate 2 is provided with a groove in its under side, containing a quantity of packing 3 and receiving a flange 4 on the casing, which compresses the packing and forms an hermetic seal.

The closure plate 2 supports a baffle wall 5 forming an enclosure within the casing 1. Preferably, though not essentially, the part 5 is formed integral with the closure plate 2 substantially as shown.

The closure plate 2 is formed with an opening through which an appropriate receiving chamber extends downwardly into the casing 1. The lower end of the receiving chamber 6 is relatively a considerable distance above the lower end of the wall 5 and is closed by a wall portion 7. A number of holes or perforations 8 are formed through the wall of the chamber 6 as shown.

A mass of compressed asbestos fibre 9 encloses the perforated part of the chamber 6 and is held compressed on the chamber 6 within a chamber 10. The chamber 10 is supported by the chamber 6, having an opening in its upper end surrounded by a threaded flange 11 engaging threads on the chamber 6.

The side walls of the chamber 10 are provided with numerous holes 12, while the lower end wall 13 of said chamber 10 is preferably imperforate. A layer of compressible packing 14 is compressed between the upper end of the chamber 10 and the inner surface of the closure 2.

The side walls of the chamber 10 are spaced from the wall 5, leaving room for the passage of the separated air and oil between said walls, permitting the oil to drop to the bottom of the casing 1 while the air may be withdrawn from said casing through a pipe 15.

The compressed air in the air compressor or other source is delivered into the separator through a pipe 16 which opens into a chamber 17 attached to and hermetically sealed with the closure 2 and opening into the chamber 6.

The depth of the oil in the casing 1 is indicated by a gage 18 supported by fittings 19, opening into the casing, and permitting oil from the casing to enter the gage.

Oil from the casing passes out through an overflow passage 20 into a trap 21. The trap 21 is provided with a discharge or withdrawal outlet 22, controlled by a float valve 23 within the trap. When the oil in the casing 1 is below the overflow passage 20, the float valve 23 will become positioned at the influent end of the passage 22, thereby closing said passage 22; but as the oil overflows through the overflow passage 20 into the trap, the float valve rises with the oil entering the trap and opens the withdrawal passage 22, permitting the oil to pass therethrough to the compressor or other place of delivery.

The bottom wall of the casing 1 is provided with an opening and a removable plug 24. By removing the plug 24 the casing 1 may be emptied for any desired purposes.

In operation the compressed air passes from the pipe 16, enters the receiving chamber 6 and is forced therefrom through the holes 8 and through the mass of compressed asbestos fibre. The asbestos fibre separates

the oil from the air. The continued pressure of the oil forces the oil and air through the asbestos fibre, causing the oil that is thus separated from the air to drop to the bottom of the casing 1, leaving the separated air free to be withdrawn through the pipe 15. As the separated oil accumulates in the bottom of the casing 1, the depth thereof is indicated by the gage 18. When the oil in the casing 1 rises to the level of the opening in the discharge outlet, the oil overflows through said pipe into the trap 21. As the oil rises in the trap 21 the valve 23 is raised to open the withdrawal passage 22 and permits the oil to be withdrawn from the trap and returned to the compressor, or to any other point of use, as desired.

By actual use I have found that this invention completely accomplishes all of its intended objects and obtains all of the desired results. The invention is free from complications, and when placed in use requires little attention, as the operation of the valve 23 controlling the withdrawal of the oil and preventing escape of the compressed air is automatic.

I am aware that many variations may be made in the construction and arrangement of the parts included in the invention without departure from the nature or principle thereof. I do not restrict myself, therefore, to the precise construction and arrangement shown, nor to any unessential particulars, but what I claim and desire to secure by Letters Patent is:—

1. An oil separator, comprising a casing arranged to receive the separated oil and the separated air, a receiving chamber extending downwardly into the casing and having openings through the side wall thereof, filtering material packed around the portion of the receiving chamber having said openings and against the lower end wall of said chamber, a pipe opening into the upper portion of the casing for withdrawing air, and an imperforate baffle wall extending downwardly into the casing below said receiving chamber and between said receiving chamber and the opening into said pipe.

2. An oil separator of the character described, comprising a casing arrangel to receive the separated oil and the separated air, a receiving chamber extending into the casing provided with a lower end wall and having openings through the side wall thereof, filtering material packed around the portion of the receiving chamber having said openings and against the end wall thereof, and a baffle surrounding the receiving chamber and the filtering material packed thereon and extending below the lower end of said chamber for causing the separated oil to drop to the bottom of the casing.

3. An oil separator of the character described, comprising a casing arranged to receive the separated oil and the separated air, a receiving chamber extending into the casing having its lower end closed and having openings through the side wall thereof within the casing, an additional chamber having a lower end wall and enclosing the receiving chamber within the casing and having openings through the side wall thereof, filtering material packed between the side and lower end walls of said two casings, a pipe opening into the upper portion of said casing, and an imperforate baffle wall in connection with the top of the casing and extending downwardly between said additional chamber and said pipe to a point below the openings through the wall of said additional chamber.

4. An oil separator of the character described, comprising a casing arranged to receive the separated oil and the separated air, a receiving chamber having a lower end wall and extending into the casing and having openings through the side wall thereof within the casing, an additional chamber having a lower end wall and enclosing the receiving chamber within the casing and having openings through the side wall thereof, filtering material packed between the side and end walls of said two casings, and a baffle wall surrounding said chambers and spaced therefrom and extending downwardly into the casing below the lower ends of said chambers.

5. An oil separator of the character described, comprising a casing arranged to receive the separated oil and the separated air, a chamber supported within the casing and having openings through the wall thereof, filtering material packed within said chamber, a passage for conducting the air from which the oil is to be separated to the filtering material, and a baffle wall surrounding said chamber and spaced therefrom and extending below all of said openings to cause the separated oil to pass to the bottom of said casing.

6. An oil separator of the character described, comprising a casing arranged to receive the separated oil and the separated air, a chamber supported within said casing having openings in the side wall thereof, filtering material packed within said chamber, a baffle wall surrounding and spaced from said chamber and extending below all of said openings, a pipe for conducting the air from which the oil is to be separated to the filtering material, a passage for conducting the oil from said casing, a chamber in connection with said passage, a withdrawal passage from said second chamber, and a device within said second chamber under control of the oil therein for controlling the passage from said second chamber.

7. An oil separator of the chamber described, comprising a casing arranged to